MOLECULAR CLONING AND EXPRESSION ANALYSIS IGM, IGD AND IGT HEAVY CHAIN GENES IN MISGURNUS ANGUILLICAUDATUS

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ABSTRACT

Immunoglobulins (Igs) are essential components of the adaptive immune system in jawed vertebrates, including teleost fish, the oldest bony vertebrate. Three immunoglobulin classes have been identified in teleost species, IgM, IgD and IgT/Z. In this study, we cloned and identified the heavy chain gene sequences of IgM, IgD and IgZ in dojo loach (*Misgurnus anguillicaudatus*). The cDNA of IgM, IgD and IgZ heavy chain gene in dojo loach consisted of 1963, 3052, 1860bp and encoding 581, 977, 544 amino acid residues, repectively. The structure of thess three Ig classes are comparised of variable region (V) and constant regions (CH): IgM(1V+4CH), IgD (1V+7CH) and IgZ (1V+4CH), which are similar to their counterparts described in other teleosts. The transcriptional level of these three Ig classes were detected by Quantitative real-time PCR (qRT-PCR) in liver, spleen, mesonephros, gills, muscle, intestine, skin, blood and swimmbladder. Interestingly, the expression of IgM and IgD were mainly detected in blood, spleen and mesonephros followed by skin, gills and intestine. However, IgT was highly expressed in intestine, mesonephros, skin and gill, followed by blood and speen. The expression of IgM, IgD and IgZ during dojo loach embryogenesis, and the pattern of expression of these three Ig molecules in dojo loach following the infection with *Aeromonas hydrophila* are under investaging. This is the first report IgM, IgD and IgZ in *M. anguillicaudatus*. The prevalence of IgT expression in intestine, skin and gills of fish strongly suggests a prevailing role of IgT in mucosal immunity.

KEYWORDS

IgM; IgD; IgZ; Expression; Dojo loach (*Misgurnus anguillicaudatus*)

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